

BEREZINA, L. Ya.

9

Investigation of the passage of a general congruence of rays through an optical system by means of the method of the moving trihedron. Latvijas PSR Zinātņu Akad. Vestis 1952, no. 3 (56), 115-126 (1952).
 (Russian. Latvian summary)

This paper is written for physicists with an ordinary college training in mathematics and interested in geometrical optics. It gives a simple exposition of the elementary theory of rectilinear congruences in the ω -notation; stress is laid on the transformation of one trihedron into another. Consideration of a congruence in a medium of refraction index n_1 into a medium of refraction index n_2 , leads to the theorem of Malus and to formulas such as

$$\frac{n_2 \cos^2 i'}{r_a} = \frac{n_1 \cos^2 i}{r_a} = \frac{n_2 \cos i' - n_1 \cos i}{R},$$

$$\frac{n_2}{r_b} = \frac{n_1}{r_b} = \frac{n_2 \cos i' - n_1 \cos i}{R}.$$

Here i, i' are the angles which the incoming and the refracted rays r, r' make with the normal to the separation surface (ξ); R is the radius of curvature of that normal section of (ξ) in the osculating plane of which lie r, r' ; R , the radius of curvature of that normal section of (ξ) orthogonal to the first; r_a, r_b are the radii of curvature of the normal sections which the plane through r and r' carves into the incoming and refracted wave surfaces; r_a, r_b the radii of curvature of the normal sections orthogonal to these. The paper finishes with some remarks on homocentric pencils and on multiple refractions. *D. J. Strusk.*

Mathematical Reviews
 Vol. 15 No. 4
 Apr. 1954
 Mathematical Physics

[Handwritten signature]

BEREZINA, L. YA.

PA 234T77

USSR/Mathematics - Congruence Pairs

1 Sep 52

"Several Relations Concerning Two-Sided Separable
Pairs of Congruences," L. Ya. Berezina

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 5, 6

Shows 4 independent algebraic relations which hold
for general 2-sided separable (laminated) pair.
These relations, with the theorem of S. P. Finikov
("Matemat Sbor" Vol 12 (54), No 3, 1943), are suffi-
cient for detg a 2-sided separable pair. Submitted
by acad S. L. Sobolev 4 Jul 52.

234T77

BEREZINA, L.YA.

"Refraction of Congruence with Real Focal Surfaces Through a n Optical System,"

Usp. Mat. Nauk, vol. 8, no. 1 (53), 111-113, Jan/Feb 1953

Demonstrates four theorems that generalize the Malus theorem concerning relations among abnormality of incident congruence, angle of incidence, abnormality of refracted congruence, angle of refraction, distances from foci of incident congruence to point of refraction, etc. Cites her two earlier related works (Iz. Akad. Nauk Latv SSR, vol 8 (49) (1951) and vol 2 (56) (1952)). Cites S.P. Finikov's "Theory of Congruence" (Teoriya Kongruentsii) MSL, State Tech Press, 1950. Submitted 17 Jul 1952.

250T63

BEREZINA, L. YA.

Mathematical Reviews
 Vol. 15 No. 3
 March 1954
 Geometry

6-24-54
 LL

(W.M.)
 Berezina, L. Ya. Some properties of evolute surfaces.
 Uspehi Matem. Nauk (N.S.) 8, no. 3(55), 109-110 (1953).
 (Russian)

Let R_1, R_2 be the radii of principal curvature of a surface (Σ) , R_1^i, R_2^i those of its evolute surfaces (Σ_i) , $i = 1, 2$, and β_i the angle between the normal to (Σ) and the lines of curvature of (Σ_i) ; then

$$\sin 2\beta_1 \sin 2\beta_2 = \frac{4(R_1 - R_2)^2}{(R_1^1 - R_2^1)(R_1^2 - R_2^2)},$$

$$(R_1^1 - R_1^2) \sin 2\beta_1 = 2(R_1 - R_2) \frac{\tan \psi_1}{\tan \psi_2},$$

$$(R_2^2 - R_1^2) \sin 2\beta_2 = 2(R_1 - R_2) \frac{\tan \psi_2}{\tan \psi_1}.$$

Here $\tan \psi_i = R_i / \rho_{1i}$ (ρ_{1i}, ρ_{2i} = radii of geodesic curvature of the lines of curvature on Σ). The β_i satisfy the equation

$$R_1^i \sin^2 \beta_i + R_2^i \cos^2 \beta_i = k_n^i / K_i,$$

where k_n^i is the curvature of the normal section to (Σ_i) in the direction of the normal to Σ ; K_i is the Gaussian curvature of (Σ_i) .

D. J. Struik (Cambridge, Mass.).

BEREZINA, L. YA.

USSR/Mathematics - Differential
Geometry
Jul/Aug 53

"Stratifiable Couples Joined to the Parabolic
Congruence of Total Perpendiculars," S. P. Finikov,
Moscow

Mat Sbor, Vol 33 (75), No 1, pp 3-12

States that in the metric theory of stratifiable
couples it is essential to refer the pair of cor-
responding rays to a rectangular trihedron formed
from the total perpendicular (normal) of the rays
of the pair and from the two vectors perpendicular
to it. Here the theory of stratifiable couples is

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connected with the peculiarities of the congruence
of total perpendiculars. Ordinarily this congru-
ence is assumed to be hyperbolic; hence the in-
terest in parabolic congruence. Cites related
work of L. Ya. Berezina (Iz Akad Nauk Latv SSR,
Vol 8 (1951), pp 1317-1325). Presented 10 Oct 52.

271T77

USSR/Mathematics - Differential
Geometry
Jul/Aug 53

"Certain Theorems on the Two-sided Stratifiable
Couples with Real Focal Surfaces," L. Ya. Berezins,
Riga

Mat Sbor, Vol 33 (75), No 1, pp 101-110.

States that the general eqs of a two-sided stratification of congruence couples have 6 forms. Notes that in 1943 S. P. Finikov expressed the coeffs of the expansion of two of these forms in independent form by means of quantities that characterize the congruence of the general perpendiculars, and thus

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obtained from one of the eqs of the stratification system the theorem of general character. Here the authoress expresses the coeffs of expansion of the remaining 4 forms in independent form by means of quantities characterizing both congruences that form the couple. Thus obtains a number of new theorems. Presented 1 Aug 52.

271T83

BEREZINA, L. Ya. Cand Math-Phys Sci -- (diss) "A Study of
~~bilaterally~~
~~Bihedrally~~ Stratifying Pairs of Congruences by Means of
Auxiliary Trihedrons." Tartu, 1957. 7 pp 21 cm. (Tartu State
Univ), 125 copies (KL, 17-57, 94)

- 4 -

16(1)
AUTHOR:

Berezina, L.Ya.

SOV/155-58-3-5/37

TITLE:

Two-Sided Fiberable Pairs of Congruences in the Lobachevskiy Space (Dvustoronne rassloyayemye pary kongruentsiy v prostranstve Lobachevskogo)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 3, pp 23-25 (USSR)

ABSTRACT:

According to the method of Finikov [Ref 1] the author establishes the system of equations which determines a two-sided fiberable pair of congruences in a Lobachevskiy space related to homogeneous normalized coordinates. One of the equations combines the eccentricity and the asymmetry [Ref 1] of the congruence of common perpendiculars, the other equations combine focal distances, angles between the focal planes, distance between center and foot of the common perpendiculars etc. There are 3 Soviet references.

ASSOCIATION: Rizhskiy pedagogicheskiy institut (Riga Pedagogical Institute)

SUBMITTED: March 1, 1958

Card 1/1

BEREZINA, L. /a.

Congruences, described with axes of triorthogonal trihedron. Vestis
Latv ak no.10:71-76 '59. (EEAI 9:10)
(Congruences (Geometry)) (Configurations)

BEREZINA, L.Ya. (Riga)

Moving n-hydrone of an m-dimensional surface in an n-dimensional space
of constant curvature. Izv. vys. ucheb. zav.; mat. no.5:8-11 '64.
(MIRA 17:12)

"APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0

BEREZINA, L.Ya. (Riga)

Theory of a two-dimensional surface in E_4 . Inv. vys. ucheb. zav.;
mat. no. 4:12-18 '64.
(MIRA 17:9)

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0"

СЕКРЕТНА III. 15.

Subject : USSR/Mining AID P - 338
Card : 1/1
Authors : Rybakov, F. F. and Berezina, M. D.
Title : The use of spectral analysis of rocks for correlation
of geological cuts
Periodical : Neft. Khoz., v. 32, #5, 55-58, My 1954
Abstracts : The authors outline a general method of semi-qualitative
spectral analysis of various rock core samples containing
traces of oil or organic substances. The geochemical
characteristics of rocks on horizontals are given in re-
lation to adopted strati-graphical scheme for the Per-
mian period. The authors present the analysis of many
regions and recommend a method for the plotting struc-
tural maps and correlation of geological sections.
One graph.
Institution : None
Submitted : No date

RYBAKOV, F.F.; BEREZINA, M.D.

Microelements in the ash of paleozoic petroleum of the eastern
part of the Russian Platform. Geol.sbor. no.3:266-269 '55.
(Russian Platform--Petroleum geology) (MLR 8:6)

BEREZINA, M.D.

Results of the determination of the manganese and potassium contents
in formation waters by spectrum analysis. Trudy Giprovostoknefti
no.3:85-89 '61

(Manganese--Spectra) (Potassium--Spectra) (MIRA 14:12)

BEREZINA, M.D.

Determining the manganese and potassium contents in formation
waters using spectrum analysis. Trudy Giprosvostoknefti no.3:
85-89 '61.
(MIRA 16:7)

(Manganese—Spectra)
(Oil field brines)
(Potassium—Spectra)

BEREZINA, M. M.: Master Med Sci (diss) -- "On the morphology of the nerves of the eye muscles of man and certain animals". Voronezh, 1959. 20 pp (Voronezh State Med Inst) (KL, No 13, 1959, 111)

ANTONOV, Ivan Aleksandrovich; BEREZINA, Mariya Nikitichna;
SIROTYUK, A.K., retsenzent; KULIKOVA, T.I., retsenzent;
SHUMAGINA, V.I., red.

[Technology of the manufacture of men's coats] Tekhnologija
izgotovlenija muzhskikh pal'to. Moskva, Legkaia industrija,
1965. 203 p. (MIRA 18:9)

BEREZINA, M. P.

Berezina, M. P. and Uglyumov, V. M. - "On the adaptation of electro-anesthetization during operative interferences on peripheral nerves," Insymposium: VIII Sessiya Neyrokhirurg. soveta i Leningr. in-ta neyrokhirurgii (Akad. med. nauk SSSR), Moscow, 1948, p. 247-48

SO: U-3600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1949)

BEREZINA, M.P.; RIKHTER, I.D.; UGRYUMOV, V.M.

Functional state of the lesion zone in craniocerebral trauma.
Uch. zap. Len. un. no.99:182-210 '49. (MLRA 10:2)

1. Fiziologicheskiy institut imeni akademii A.A. Ukhtomskogo
pri Leningradskom gosudarstvennom universitete.
(BRAIN--WOUNDS AND INJURIES)

BEREZINA, M. P.

23671

O FUNKTSIONAL'NOM SOSTOYANII RANEVOY ZONY BOL'SHIKH POLUSHARTY GOLOVNOGO MOZGA PRI
OGNESTREL'NYKU RANENIYAKH. TRUDY SARAT. GOS. MED. IN-TA, T. VIII, 1949, S. 349-64.

SO: LETOPIS NO. 31, 1949

BEREZINA, M.P.

YAKIMOV, P.A., doktor khimicheskikh nauk; BULATOV, P.K., doktor meditsinskikh nauk; ~~BEREZINA, M.P.~~, doktor biologicheskikh nauk.

The preparation "BIN-chaga," made from white rot fungus. Vest.AN SSSR
27 no.4:88-91 Ap. '57.
(MEDICAL MYCOLOGY)

BEREZINA, M.P.; GUSEVA, Ye.A.

Disinhibiting asphyxial parabiosis of the nerve by the anodic action
of direct current [with summary in English]. Vest. IgU 13 no.15:133-139
'58. (MIRA 11:9)

(ELECTROPHYSIOLOGY) (NERVES)

BREZINA, M.P.; VASIL'IEVA, V.K.

Conditioned reflex variation of skin reactions in patients with
bronchial asthma [with summary in English]. Vest.LGU 13 no.21:
125-133 '58. (MIRA 11:12)
(ASTHMA) (SKIN) (CONDITIONED RESPONSE)

USSR/Human and Animal Physiology (Normal and Pathological)
Neuro-Muscular Physiology.

T

Abs Jour : Ref Zhur Biol., No 6, 1959, 26931
Author : Berezina, M.P., Guseva, Ye.A.
Inst : Leningrad University
Title : The Removal of Asphyxial Nerve Parabiosis by Means of the
Action of Direct Current Anode
Orig Pub : Vestn. Leningr. un-ta, 1958, No 15, 133-139

Abstract : The nerve asphyxia was performed according to the method
described in earlier work of the authors (Tr. Leningr.
o-va yestestvoisp., 1935, 64, vyp. 3, 283). In the begin-
ning of nerve asphyxiation, the phase of shortening of
chronaxia was noted; later, the phase of its lengthen-
ing. In the process of development of asphyxial parabio-
sis in the altered part, a bi-phase change of lability

Card 1/2

- 81 -

USR/Human and Animal Physiology (Normal and Pathological)
Neuro-Muscular Physiology.

T

Abs Jour : Ref Zhur Biol., No 6, 1959, 26931

(initial increase of it, with subsequent decrease) was
also noted. Excitability and conductivity of asphyxia-
ted nerve which disappeared completely were restored in
inclusion of a direct current anode in the conditions of
continuing asphyxia.

Card 2/2

BULATOV, Panteleymon Konstantinovich, red.; BEREZINA, M.P., red.; YAKIMOVA, P.A., red.
[Fomes igniarius f. sterilis Van and its therapeutic in fourth-stage cancer] Chaga i ee lechebnoe primenenie pri rake IV stadii. Leningrad, Medgiz, 1959. 333 p. (MIRA 13:2)
(CANCER) (FUNGI--THERAPEUTIC USE)

BEREZINA, Mariya Pavlovna; VASILEVSKAYA, Natal'ya Yefimovna; AVERBAKH, Mikhail Solomonovich; VETYUKOV, Ivan Alekseyevich, dots.; GOLIKOV, Nikolay Vasili'yevich; GULYAYEV, Pavel Ivanovich; ZHUKOV, Yevgraf Konstantinovich; LATMANIZOVA, Lyudmila Vladimirowna; MAKAROV, Petr Osipovich; NIKITINA, Iya Pavlovna; SPERANSKAYA, Yekaterina Nikolayevna; VASIL'YEV, L.L., prof., red.; PEREDEL'SKAYA, N.M., red.; PARSADANOVA, K.G., red. izd-va; GRIGOR'CHUK, L.A., tekhn. red.

[Comprehensive laboratory manual of human and animal physiology] Bol'shoi praktikum po fiziologii cheloveka i zhivotnykh. Izd.2., ispr. i dop. Moskva, Gos. izd-vo "Vyshaiia shkola," 1961. 674 p. (MIRA 14:8)
(PHYSIOLOGY—LABORATORY MANUALS)

BEREZINA, M.V.; SYRTSOVA, K.F.

Substitutes for magnesium sulfate in duodenal sounding. Lab. delo 8
no.3:25-26 Mr '62. (MIRA 15:5)
(DUODENUM—INTUBATION) (SUCROSE)

BEREZINA, N. A.

N. A. Berezina, G. G. Abrikosov, Z. S. Bronstein, N. S. Gayevskaya,
V. I. Zatzepin, N. N. Kondakov, K. I. Meyer, V. I. Olifan, P. I.
Usatchev, Z. A. Filatova, A. A. Shorigin, T. F. Chitchapova,
Z. G. Shchedrin, V. A. Jashnov co-authors of the book "Definitions -
Fauna and Flora of Northern Seas in USSR edited by Prof. N. S. Gayevski,
and approved by the Ministry of USSR Higher Education as a manual
for universities. State Publishing "SOVIET SCIENCE", Moscow - 1948.

SO: . 654015

"APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0

BEREZINA, N. A.

Gidrobiologiya (Hydrobiology) Moskva, Sovetskaya Nauka, 1953.
358 p. Illus., Maps, Tables.

SO: N/5
631.43
.B4

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0"

BEREZINA, Natal'ya Alekseyevna

[Hydrobiology] Gidrobiologiya. Izd.2. Moskva, Gos.
izd-vo "Vysshiaia shkola," 1963. 438 p. (MIRA 17:9)

BEREZINA, N.A.

Use of insecticides in controlling predatory insect pests of fish.
Vop.ikht.no.7:209-220 '56. (MIRA 10:3)

1. Kafedra gidrobiologii Moskovskogo tekhnicheskogo instituta rybnoy
promyshlennosti i khozyaystva im. A.I. Mikoyana.
(Fishes--Diseases and pests) (Insecticides)

TYUREMNOV, S.N.; BEREZINA, N.A.

Destruction of the pollen of woody plants under different supplies of water and minerals. Vest. Mosk.un. Ser. 6: Biol., pochv. 20 no.5:62-71 S-0 '65. (MIRA 18:11)

1. Kafedra geobotaniki Moskovskogo universiteta. Submitted March 24, 1965.

~~BEREZINA, N.P. (Kirov); POPOVA, Z.V. (Kirov); SOLODENNIKOV, A.I. (Kirov)~~

Practical studies of students in a plant chemical laboratory.
Khim.v shkole 11 no.5:62-63 S-0 '56. (MLRA 9:11)
(Chemistry--Study and teaching)

BEREZINA, N.I.; ROYTER, I.M.; BASHNOVA, R.S.

Fermenting of dough prepared with liquid yeast and table salt.
Trudy KTIFF no.17:75-80 '57. (MIRA 13:1)
(Yeast) (Baking)

. BEREZINA, N.I.

AL'SHTS, I.Ya., kandidat tekhnicheskikh nauk; BABKIN, S.I., kandidat tekhnicheskikh nauk; BALAKSHIN, B.S., doktor tekhnicheskikh nauk, professor; BEYSEL'MAN, R.D., inzhener; BELYAYEV, V.H., kandidat tekhnicheskikh nauk; BEREZINA, N.I., inzhener; BIRGER, I.A., doktor tekhnicheskikh nauk; BOGUSLAVSKIY, Yu.M., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk; GONIKBERG, Yu.M., inzhener; GORDON, V.O., professor; GORODETSKIY, I. Ye., doktor tekhnicheskikh nauk, professor; GROMAN, M.B., inzhener; DIKER, Ya.I., kandidat tekhnicheskikh nauk; DOSCHATOV, V.V., inzhener; IVANOV, A.G., kandidat tekhnicheskikh nauk; KHASOSHVILI, R.S., doktor tekhnicheskikh nauk, professor; KHUTIKOV, I.P., kandidat tekhnicheskikh nauk; LEVENSON, Ye.M., inzhener; MAZYRIN, I.V. inzhener; MARTYNOV, A.D., kandidat tekhnicheskikh nauk; NIBERG, N.Ya., kandidat tekhnicheskikh nauk; NIKOLAYEV, G.A., doktor tekhnicheskikh nauk, professor; PETRUSEVICH, A.I., doktor tekhnicheskikh nauk; POZDNYAKOV, S.N., dotsent; PONOMAREV, S.D., doktor tekhnicheskikh nauk, professor; PRONIN, B.A. kandidat tekhnicheskikh nauk; RESHETOV, D.N., doktor tekhnicheskikh nauk, professor; SATEL', E.A., doktor tekhnicheskikh nauk, professor; SIMAKOV, F.F., kandidat tekhnicheskikh nauk; SLOBODKIN, M.S., inzhener; SPITSYN, N.A., doktor tekhnicheskikh nauk, professor; STOLBIN, G.B., kandidat tekhnicheskikh nauk; TAYTS, B.A., doktor tekhnicheskikh nauk; CHERNYSHEV, H.A., kandidat tekhnicheskikh nauk; SHNEYDEROVICH, R.M., kandidat tekhnicheskikh nauk;

(Continued on next card)

AL'SHITS, I.Ya., kandidat tekhnicheskikh nauk (and others)..... Card 2.

cheskikh nauk, BYDINOV, V.Ya., kandidat tekhnicheskikh nauk;
ERLIKH, L.B., kandidat tekhnicheskikh nauk; ACHERKAN, N.S.,
doktor tekhnicheskikh nauk, professor, redaktor; MARKUS, M.Ye.,
inzhener, redaktor; KARGANOV, V.G., inzhener, redaktor; SOKOLOVA,
T.F., tekhnicheskiy redaktor.

[Mechanical engineer's manual; in 6 volumes] Spravochnik mashino-
stroitelia; v shesti tomakh. Izd.2-e, ispr. i dop. Moskva, Gos.
nauchno-tekhn.izd-vo mashinostroit. lit-ry, Vol.4, 1955. 851 p.
(Mechanical engineering) (MLRA 8:12)

USSR/ Engineering - Gear transmissions

Card 1/1 Pub. 128 - 6/25

Authors : Berezina, N. I.

Title : A simplified geometric calculation of spur gear transmission

Periodical : Vest. mash. 1, 36-42, Jan 1955

Abstract : A series of scientific papers dealing in the calculation of gear transmission systems, spur gears and graphs for calculation gear pitch, is presented. Four USSR references (1949-1954). Tables; graphs.

Institution :

Submitted :

BEREZINA, N.I., Cand Chem Sci--(diss) "On the structure and properties of the electropolished surface of metal." Kazan', 1958. 11 pp (Min of Higher Education USSR. Kazan' Chem-Technol Inst im S.M. Kirov), 150 copies (KL,30-58,12)

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SOV/137-59-5-11545

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 295
(USSR)

AUTHORS: Berezina, N.I., Vozdvizhenskiy, G.S.

TITLE: On the Structure of an Electropolished Surface²⁶

PERIODICAL: Tr. Kazansk. khim.-tekhnol. in-ta, 1958, Nr 22, pp 60 - 70

ABSTRACT: To investigate the structure of an electropolished Cu surface, the authors used the "dew" method and applied extremely thin Cu depositions from acid electrolytes. When using the "dew" method, the specimens were cooled down to ~ 0°C after electropolishing and drying. Then they were subjected to a slight steam blast. The distribution of the dew was observed under a microscope. Changes in luster during the electropolishing process were also observed. During the electropolishing process, specimens, preliminarily subjected to rolling, became rapidly brighter within the first 1.5 - 2 minutes. The luster of annealed specimens

Card 1/2

On the Structure of an Electropolished Surface

SOV/137-59-5-11545

diminished during the first 15 - 20 seconds and increased rapidly thereafter. The authors suppose that data obtained on the distribution of the dew and of the galvanic depositions assert the theory that electropolishing is a process of electric decrystallization. There are 7 bibliographical titles.

N.K.

Card 2/2

BEREZINA, N.I.; AKHMETOV, N.S., otv. red.

[Laboratory work in inorganic chemistry] laboratornyi
praktikum po kur'yu neorganicheskoi khimii. Kazan', Ka-
zanskii khimiko-tehnologicheskii in-t. No.1. 1963. 29 p.
(MIRA 17:10)

ALEKSANDROVA, V.P.; BEREZINA, N.K.; BERNSHTEYN, A.I.; BERNSHTEYN, S.E.;
BLOKH, R.L.; ZINKOVETSKAYA, T.S.; IDESIS, Ye.S.; SMOLENKOVA, O.N.;
TOSHINSKIY, I.I.; TSARFIS, P.G.; SHABAD, Ye.T.; SHEYNBERG, O.A.

Professor E.IA. Stavskaya; obituary. Vop. kur., fizioter. i lech.
fiz. kul't. 26 no. 2:191 Mr-Ap '61. (MIRA 14:4)
(STAVSKAIA, EVGENIIA IAKOVLEVNA, 1892-1960)

BRESLAVETS, L.P.; BEMZINA, N.M.; SHCHIBRYA, G.I.

Effect on certain agricultural plants of prolonged irradiation with
small doses of gamma rays. Biofizika 1 no.6:555-563 '56. (MLRA 10:1)

1. Institut biologicheskoy fiziki Akademii nauk SSSR, Moskva.
(GAMMA RAYS--PHYSIOLOGICAL EFFECT)
(PLANTS, EFFECT OF RADIATION ON)

BRESLAVETS, L.P.; BRRERZINA, N.M.; SHCHIBRYA, G.I.; ROMANCHIKOV, M.L.

Effect of ionizing radiations on the growth and development of certain agricultural plants. Biophysika 1 no.7:628-632 '56.

(MLRA 9:12)

1. Institut biologicheskoy fiziki Akademii nauk SSSR, Moskva.
(PLANTS, EFFECT OF RADIATION ON)

BEREZINA, N M.

23

PHASE I BOOK EXPLOITATION SOV/5628

Akademiya nauk SSSR. Institut biologicheskoy fiziki

Rol' perekisey i kisloroda v nachal'nykh stadiyakh radiobiologicheskogo effekta (Role of Peroxides and Oxygen During Primary Stages of Radiobiological Effects) Moscow, 1960. 157 p. 4,500 copies printed.

Responsible Ed.: A. M. Kuzin, Professor; Ed. of Publishing House: K. S. Trincher; Tech. Ed.: P. S. Kashina.

PURPOSE : This collection of articles is intended for scientists in radiobiology and biophysics.

COVERAGE: Reports in the collection deal with the role of peroxides and oxygen in the primary stages of a radiobiological effect. They were presented and discussed at a symposium held December 25-30, 1958, organized by the Institut biofiziki AN SSSR, (Institute of Biophysics, AS USSR). Twenty-eight Moscow scientists, radiobiologists, radiochemists, physicists, and

Card 1/5

Role of Peroxides and Oxygen (Cont.)

SOV/5628

physical chemists took an active part in the symposium. Between the time of its conclusion and the publication of the present book some of the materials were expanded. In addition to the authors the following scientists participated in the discussion: L. A. Tummerman, V. S. Tongur, G. M. Frank, Yu. A. Kriger, E. Ya. Grayevskiy, N. N. Demin, B. N. Tarusov, and I. V. Vereshchenskiy. References follow individual articles.

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Kuzin, A. M. [Institut biologicheskoy fiziki AN SSSR - Institute of Biophysics, AS USSR]. Role of Formation of Peroxides During the Action of Radiation on Biological Specimens	3
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"APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0

BRESLAVETS, L.P.; HERZINA, N.M.; SECHIBRYA, G.I.; ROMANCHIKOVA, M.L.;
YAZYKOVA, V.A.; MILESHKO, Z.F.

Increasing the yield of radishes and carrots by irradiating seeds
with gamma and X rays before sowing. Biofizika 5 no.1:81 '60.

(MIRA 13:6)

(RADISH) (CARROTS) (PLANTS, EFFECT OF RADIATION ON)

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0"

KUZIN, A.M.; BEREZINA, N.M.; SHLYKOVA, O.N.

Role of the dose rate in radiobiological effects on plants.
Biofizika 5 no. 5:566-569 '60. (MIRA 13:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(PLANTS; EFFECT OF GAMMA RAYS ON) (RADIATION—DOSAGE)

BEREZINA, N.M.

Use of ionizing radiations in raising the yield of agricultural crops. Atom.energ. 9 no.5:432-433 N '60. (MIRA 13:11)
(Plants, Effect of radiation on)

SHCHIBRYA, G.I.; BEREZINA, N.M.; PERETOKIN, I.V.; YAZYKOVA, V.A. [deceased]

Increasing the yield and vitamin content of strawberries following cultivation of planting material in a gamma field. Trudy VNIVI 8:86-89 '61. (MIRA 14:9)

1. Sel'skokhozyaystvennyy otdel Vsesoyuznogo nauchno-issledovatel'skogo vitamininogo instituta.
(Strawberries) (Plants, Effect of radioactivity on)

~~MIRRAINA, N.M.; RADIATION, X-RAY INJURY,~~

Significance of the disturbance of metabolic reactions in radiation
injury of seeds. Radiobiologija 1 no.1:135-138 '61. (MIRA 14:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(PLANTS, EFFECT OF X RAYS ON) (SEEDS)

BEREZINA, N.M.; SHCHIBRYA, G.I.; ROMANCHIKOVA, M.L.

Results of irradiating seeds of Rubin radishes under conditions of hotbed culture. Radiobiologiya 1 no.3:461-462 '61. (MIRA 14:10)

1. Institut biologicheskoy fiziki AN SSSR, Moscow
(PLANTS, EFFECT OF GAMMA RAYS ON) (SEEDS)

S/205/61/001/004/032/032
D298/D303

AUTHORS: Kuzin, A. M., and Berezina, N. M.

TITLE: Chronicle. Presowing gamma-irradiation of the seeds
of agriculture crops

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 636-638

TEXT: The article presents the results of the Soveshchaniye po
predposevnomu oblucheniyu semyan sel'skokhozyaystvennykh kul'tur
(Conference on the Presowing Irradiation of the Seeds of Agricultural
Crops), convened by the Institut biologicheskoy fiziki AN SSSR (Institute
of Biophysics, AS USSR) in conjunction with the Sovet po ispol'zovaniyu
atomnoy energii v sel'skom khozyaystvye VASKhNIL (Council on the Use of
Atomic Energy in Agriculture, VASKhNIL) on February 20-23, 1961, in
Moscow. The conference was convened by the Laboratoriya radiobiologii
(Laboratory of Radiation Biology) of the Institute of Biophysics, AS
USSR, to summarize research on the effects of the presowing of seeds on
the growth, development and biochemical composition of plants. The

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Chronicle. Presowing...

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conference was attended by 96 specialists from 38 scientific research institutions and training institutes. The papers summarized research on the presowing irradiation of the seeds of various agricultural crops. In all cases a rise in yield, acceleration of maturation, and an increase in seed germination were noted. Generalization of the research data on maize obtained over a period of years in the Ukrainskiy institut fiziologii rasteniy (Ukrainian Institute of Plant Physiology), the Sibirskiy botanicheskiy sad Zapadnosibirskogo filiala AN SSSR (Siberian Botanical Gardens of the West Siberian Branch, AS USSR), the Institut biologii AN Latviyskoy SSR (Institute of Biology, AS Latviyskaya SSR), the L'vovskiy universitet (L'vov University), the Institut genetiki i selektsii AN Azerbaydzhanskoy SSR (Institute of Genetics and Selection, AS Azerbaydzhanakaya SSR) and the Institute of Biophysics, AS USSR, showed that gamma-irradiation of dry maize seeds in doses of 500 p to 4 kr stimulates its growth and development, gives an increase in grain yield of 10 - 18% and of green mass from 5 - 28%. An account of various individual studies of this problem is given. The Institute of Biology of the AS Latviyskaya SSR, the L'vov University, the Ural'skiy ✓

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Chronicle. Presowing...

filial AN SSSR (Urals Branch, AS USSR), the Institute of Biophysics, AS USSR, in conjunction with the Vsesoyuznyy nauchno-issledovatel'skiy institut vitaminnoy promyshlennosti (All-Union Scientific Research Institute of the Vitamin Industry) studied the irradiation of various varieties of radish seeds. In all cases an increase of 11 - 26% in the root yield and a 5 - 6 day acceleration in root ripening were noted. The optimum radiation doses were 500 and 1,000 r. Presowing irradiation of tomatoes carried out by the Urals Branch, AS USSR, the L'vov University and the Institute of Biophysics, AS USSR, accelerated ripening of the fruits and increased the yield by 27 - 45%. Irradiation of sprouting seeds gave an increase in the fruit yield of up to 66%. This method should be subjected to all-round research since in almost all cases it gave higher indices than with irradiation of dry seeds. The presowing irradiation of carrots by the Institute of Biophysics, AS USSR, in conjunction with the All-Union Scientific Research Institute of the Vitamin Industry and L'vov University showed that this crop had a high resistance to radiation and that irradiation gave an increase in the root yield of

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14 - 22%. Irradiation of sprouting seeds gave an increase of up to 50%. The Institute of Biophysics, AS USSR, the Institute of Genetics, AS Azerbaydzhanskaya SSR, and L'vov University found that irradiation of cucumber seeds in doses of 300 - 500 r gave an increase of 15 - 30% in the cucumber yield (with irradiation of dry seeds) or up to 39% (irradiation of sprouting seeds). The results of presowing irradiation of melon and watermelon seeds carried out by the Institute of Genetics, AS Azerbaydzhanskaya SSR, are also reported. Irradiation of sprouting seeds of sugar beet at L'vov University gave a rise of 26 - 56% in the fruit yield. This was accompanied, however, by a drop in the sugar content of the roots. The Nauchno-issledovatel'skiy institut kartofel'nogo khozyaystva (Scientific Research Institute of Potato Farming), the Institute of Biophysics, AS USSR, and the Institute of Biology, AS Latviyskaya SSR, studied the presowing irradiation of different varieties of potato. Irradiation in doses of 100 - 500 r gave a rise of 8 - 44% in the tuber yield. Grechmshnikov found that presowing irradiation of potato tubers in a dose of 500 r gave a vitamin C content of 19.1 mg%, as opposed to 13.4% in the control. The authors of the article found ✓

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that irradiation of tubers in a dose of 250 r gave an ascorbic acid content of 33.7 mg%, as opposed to 24.8% in the control. Presowing irradiation of perennial grass seeds carried out by the Urals Branch, AS USSR, and the Vsesoyuznyy nauchno-issledovatel'skiy institut uchebniy i agropochvovedeniya VASKhNIL (All-Union Scientific Research Institute of Fertilizers and Agropedology, VASKhNIL) gave an increase in the green mass yield at the first and subsequent mowings. The Institute of Biophysics, AS USSR, in conjunction with the Vsesoyuznyy nauchno-issledovatel'skiy institut l'na (All-Union Scientific Research Institute of Flax) and the Institut yadernoy fiziki (Institute of Nuclear Physics) studied the presowing irradiation of textile crop seeds (flax and Indian hemp) and found that this method led to an increase in the yield and the quality of the fiber. There is 1 table.

Card 5/5



SESSION D-5-4 : Plants : Effects on Seeds

(a)
The Influence of γ -Irradiation of the Seeds on the Development and Metabolism of the Plant

A. M. Kuzin and N. M. Berezina

Physical and chemical heterogeneity of different tissues of seeds causes different initial processes in them after γ -irradiation (lifetime of free radicals, formation of peroxides, etc.)

Investigation of the oxidation processes in a germinating seed after irradiation showed considerable changes in the activity of peroxidase, of polyphenoloxidase and of catalase in different parts of the seed. Changes of oxidation processes are reflected in the rate of accumulation of some of the active regulators of oxidation processes, namely ascorbic acid and lipid peroxides. Change of the oxidation processes in an irradiated seed and change of the DNA structure cause further changes in the rates of the development and of the metabolism of the plant.

The dose-dependence has a two-phase character for many species of plants. Irradiation causes acceleration of the development of the plant below a definite dose, and changes of the regular distribution of growing points which lead to branching, and also increases the numbers of regenerating organs. Increased doses cause increasing damage to development and finally its full inhibition. Changes in morphogenesis lead to changes of metabolic processes. This results in an increased accumulation in tissues of one or another metabolite.

Institute of Biophysics, USSR Academy of Sciences, Moscow

report presented at the 2nd Intl. Congress of Radiation Research,
Harrogate/Yorkshire, Gt. Brit. 5-11 Aug 1962

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E027/E410

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2620

AUTHORS: Berezina, N.M., Ostapenko, V.I., Korneva, Ye.I.,
Riza-Zade, R.R.

TITLE: Morphological changes in plants under the influence
of ionizing radiation

PERIODICAL: Radiobiologiya, v.2, no.6, 1962, 931-937

TEXT: The production of multiple cobs was observed in maize
plants grown from seeds irradiated with 500 r from a Cs¹³⁷ source
before sowing. Of 200 plants studied 25 (13%) had 1 cob;
91 (45%) had 2; 60 (30%) had 3; 18 (9%) had 4; whereas 90 (45%)
of 200 control plants from unirradiated seeds had 1 cob and the
remaining figures were all lower. The harvest from 6 plots sown
with irradiated and control seeds showed that the experimental
plants gave higher yields of stalks, cobs and husks. Increased
branching occurred in buckwheat exposed to chronic gamma-
irradiation in a total dose of 250 r and there was a corresponding
increase in the number of inflorescences. Branching could also
be induced in hemp and jute, with corresponding increase in the
harvest. Similar changes were seen in plants developing from

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Morphological changes ...

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irradiated potatoes, mint rhizomes and apple cuttings.
There are 6 figures and 3 tables.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR, Moskva
(Institute of Biophysics AS USSR, Moscow)

SUBMITTED: July 18, 1962

Card 2/2

BEREZINA, N.M.

Methods of production and economic significance of polyploid
forms of Pelargonium radula roseum W. Trudy MOIP. Otd.biol.
5:274-279 '62. (MIRA 16:5)

1. Institut biofiziki AN SSSR, Moskva.
(TERANIMS) (POLYPLOIDY)

BEREZINA, N.M.; SHCHIERIA, G.I.; DROZHZHINA, V.V.; RIZA-ZADE, R.R.;
TARASOVA, A.D.

Effect of Co^{60} gamma irradiation of tubers before planting on
the yield and vitamin C content of potatoes. Radiobiologija
3 no.1:139-142 '63. (MIRA 16:2)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(PLANTS, EFFECT OF GAMMA RAYS ON) (POTATOES)
(ASCORBIC ACID)

BEREZINA, N.M.; YAZYKOVA, V.A. [deceased]

Effect of ionizing radiations on peroxidase activity in corn
seedlings grown from irradiated seeds. Radiobiologija 3 no.2:
177-180 '63
(MIRA 17:1)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

KUZIN, A.M.; DUBONOSOV, T.S.; BEREZINA, N.M.; RIZA-ZADF, R.R.; TARKOV, S.N.

Possibilities for utilization of ionizing radiations in hydroponics. Radiobiologia 4 no.3:457-459 '64.

(MIRA 17:11)

1. Institut biologicheskoy fiziki AN SSSR, Moskva i Krasnodarskiy nauchno-issledovatel'skiy sel'skokhozyaystvennyy institut, gidroponicheskoye khozyaystvo.

BEREZINA, N.N.; TORNINA, Yu.L.

Effect of various doses of gamma irradiation on the growth of
pepper mint rootstock. Radiobiologiya no.5(79)-80. ¹⁹⁸⁰ ^{Vol.}
(SERIA 184)

U.S. Institute biologicals AN SSSR, Moscow.

BEREZINA, Nina Mikhaylovna; KUZIN, A.M., red.; KARLOVA, T.V.,
red.

[Radiation of farm crop seeds before sowing] Predposel'noe
obluchenie semian sel'skokhoziaistvennykh rastenii. Mos-
skva, Atomizdat, 1964. 210 p. (NIRI 1844)

1. Chlen-korrespondent AN SSSR (for Kuzin).

KUZIN, Aleksandr Mikhaylovich; EREZINA, N.M.

[Atomic energy in agriculture] Atomnaya energiya v sel'skom khoziaistve. Moskva, Atomizdat, 1964. 79 p.
(MIRA 19:1)

NEKRASOV, L.N.; BEREZINA, N.P.

Use of a disk electrode with a ring in studying the electroreduction
of copper. Dokl. AN SSSR 142 no. 4:855-858 F '62.

(MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavлено akademikom A.N.Frumkinyem.

(Copper)
(Reduction, Electrolytic)

BEREZINA, N.P.; GLUPUSHKIN, P.M.; KASHIN, V.A.; SIDOROV, A.I.

Conductive rubbers in cable goods. Kauch.i rez. 21 no.9:21-26
S '62. (MIRA 15:11)

1. Tomskiy nauchno-issledovatel'skiy institut kabel'noy
promyshlennosti i Moskovskiy nauchno-issledovatel'skiy
institut kabel'noy promyshlennosti.
(Rubber—Electric properties)
(Cables)

PA 75T24

USSR /Chemistry - Electrolysis
Chemistry - Cathodes

Apr 1948

"Cathodes With Reduced Hydrogen Liberation Potential,"
N. P. Fedot'yev, N. V. Berezina, Ye. G. Kruglova,
Electrochim Lab, Leningrad Tech Inst, 12 pp

"Zhur Prilied Khim" Vol XII, No 4.

Describes method which permits easy reduction of cathode potential. Studies of 15 common hydrocarbons and steel alloys did not give positive results in spite of wide variety of samples used. Attempts to determine proper method for preparing surfaces. Practical value of this series of experiments found

75T24

USSR /Chemistry - Electrolysis (Contd) Apr 1948

In possibility of determining length of operational use of a cathode under various operating conditions.
Submitted 1 Oct 1947.

75T24

BEREZINA, O.; ZLOTNIKOVA, L.; LEONOVA, A.; NOVITSKAYA, O.

Methodology of labor productivity analysis and planning by factors in the petroleum refining industry. Biul. nauch. inform: trud i zar. plata 3 no. 11:3-10 '60. (MIRA 14:1)*
(Petroleum industry--Labor productivity)

BEREZINA, O. N., Candidate Med Sci(diss) -- "The effect of protracted irradiation with small doses of X-rays on susceptibility to the grippa virus and the formation of anti-grippa immunity under experimental conditions". Moscow, 1959. 11 pp (Acad Med Sci USSR), 200 copies (KL, No 24, 1959, 148)

PETERSON, O.P.; BEREZINA, O.N.; KOZIOVA, I.A.; SKLYANSKAYA, Ye.I.; PETROV,
R.V., red.; ZAKHAROCA, A.I., tekhn. red.

[Influence of ionizing radiation on virus infections and on anti-viral immunity] Vlijanie ioniziruiushchego izlucheniia na virusnye infektsii i protivovirusnyi immunitet. Moskva, Gos. izd-vo med. lit-ry Medgiz, 1961. 165 p. (MIRA 14:9)
(RADIATION—PHYSIOLOGICAL EFFECT) (VIRUS DISEASES) (IMMUNITY)

POPOVA, O.M.; BEREZINA, O.N.

Effect of previous X-ray irradiation on the susceptibility of white mice to infection by ornithosis virus aerosol. Vop. virus. 9 No.2(23). 216 Mrz-Ap '64. (MIRA 1.1.12).

1. Institut virusologii imeni Iвановского АМН СССР. Москва.

UGOLEVA, N.A.; BEREZINA, O.N.; NOSACHEVA, A.D.; SOKOLOV, M.I.; PETERSON, O.P.

Ribonuoleic acid polymerase activity induced by NDV virus (M_3 strain).
Vop. virus. 10 no.3:347-349 My-Je '65. (MIRA 18:7)

1. Institut virusologii imeni Ivanovskogo AMN SSSR, Moskva.

BOCHAROV, A.F.; GOFMAN, Yu.P.; BEREZINA, O.N.; POKHITONOV, Yu.P.

Morphological characteristics of the particles of herpes simplex
virus. Vop. virus. 10 no.2:150-155 Mr-Ap '65.

(MIFB 18:10)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.

BEREZINA, O.Ya., inzhener.

New types of uniform wool from crossbred sheep. Tekst.prom.14
no.1:15-17 Ja '54. (MLRA 7:2)
(Wool)

BEREZINA, G.Ya., inzhener.

New type of hybrid wool in the Transcarpathian Mountain region.
Tekst.prom. 16 no.5:17-18 My '56. (MLRA 9:8)
(Transcarpathia--Wool industry)

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BEREZINA, O.Ya., inshener.

New type of Russian crossbred wool. Tekst. prom. 17 no. 7:20-22
Jl '57. (MLRA 10:9)
(Wool)

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CIA-RDP86-00513R000204820014-0"

BEREZINA, O.Ya.

Rated properties of fine combed-wool yarn. Izv.vys.ucheb.sav.; tekhn.
tekst.prom. no.4:19-27 '58. (MIRA 11:11)

1. Moskovskiy tekstil'nyy institut.
(Woollen and worsted manufacture)

BEREZINA, O. Ya.: Master Tech Sci (diss) -- "The dependence of the properties of finely combed wool yarn on its number and twist". Moscow, 1959. 21 pp (Min Higher Educ USSR, Moscow Textile Inst), 150 copies (KL, No 16, 1959, 108)

IVANOV, S.S., kand.tekhn.nauk; BEREZINA, O.Ya., kand.tekhn.nauk

Development of unevenness norms for semiprocessed fibers and yarn.
Tekst.prom. 21 no.2:57-59 Ja '47. (MIRA 14:3)
(Textile fiber) Standards)

BEREZINA, O.Ya.

Statistical control method in cotton spinning. Nauch.-issl.
trudy TSNIIKHBI '60 [publ. '62]:232-242.

(MIRA 18:2)

MARKOV, F.M., insh.y-~~DEREZINA~~, O.Ya. starshiy nauchnyy setrudnik, kand.
tekhn.nauk

Statistical method of quality control in cotton spinning. Tekst.
prom. 22 no.4:35-38 Ap '62. (MIRA 15:6)

1. Zaveduyushchiy laboratoriyy Reutovskoy khlopkopr'yadil'noy
fabriki (for Markov). 2. TSentral'nyy nauchno-issledovatel'skiy
institut khlopchatobumazhnnoy promyshlennosti (TSNIKhBI).
(Cotton manufacture—Quality control)

BEREZINA, O.Ya.

Testing hosiery yarn. Standartizatsiia 26 no.7:32-33 Jl '62.
(MIRA 15:7)
(Yarn--Testing)

BEREZINA, O.Ya., starshiy nauchnyy sotrudnik; SHAKHOVA, Ye.N., inzh.;
GUSHCHINA, N.G., inzh.

Studying the causes of the formation of periodical unevenness
of the product on spinning machines. Tekst. prom. 24 no.10:
40-43 O '64. (MIRA 17-12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut khlebopchato-
mazhnay promyshlennosti (for Berezina). 2. Zaveduyushchiy
proizvodstvennoy laboratoriyye pryadil'no-tkatskoy fabriki
imeni Frunze (for Shakhova). 3. Nachal'nik prigotovitel'no-
pryadil'nogo tsekha pryadil'no-tkatskoy fabriki imeni Frunze
(for Gushchina).

BEREZINA, O.Ya., kand. tekhn. nauk, starshiy nauchnyy sotrudnik

Statistical method of production control in cotton spinning.
Tekst. prom. 25 no.4:25-27 Ap '55. (MIRA 18:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut khlopotatobumazhnoy promyshlennosti.

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TRET'YAKOVA, N.Ya.; BEREZINA, O.Ya. (Moskva)

Reviews. Shvein. prom. no.4:37 Jl-Ag '65.

(MIRA 18:9)

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000204820014-0"

BEREZINA, P.F.; KATSEVSON, R.A.

Treatment of pyoderma with antibiotics. Vest. vener., Moskva No.1:28-29
Jan-Feb 52. (CIML 21:4)

1. Of the Clinic for Skin and Venereal Diseases (Head--Prof. A.A. Akovbyan) of Tashkent Medical Institute and of the Department of Microbiology (Head--Honored Worker in Science Prof. P.F. Samsonov) Tashkent Medical Institute.

KATSNEL'SON, R.A., kandidat meditsinskikh nauk; BEREZINA, P.F., kandidat
meditsinskikh nauk

Treatment of staphylococcal pyodermitis with anatoxin. Vest.ven.
i derm.no.3:53 My-Je '56. (MIRA 9:9)

1. Iz kafedry mikrobiologii i kliniki kozhnykh i venericheskikh
zabolevaniy Tashkentskogo gosudarstvennogo meditsinskogo instituta
imeni V.M.Molotova.
(SKIN--DISEASES) (TOXINS AND ANTITOXINS)

BEREZINA, R.M.

25522
S/065/61/000/008/007/009
E194/E135

11.0170

AUTHORS: Losikov, B.V., Fat'yanov, A.D., Mikulin, Yu.V.,
Aleksandrova, L.A., Koznov, G.G., and Berezina, R.M.

TITLE: The use of residual fuels in gas turbines

PERIODICAL: Khimiya i tekhnologiya topliv i masel,
1961, No. 8, pp. 47-53

TEXT: The mechanism of deposit formation and corrosion in
gas turbines using residual fuels containing vanadium and sodium is
discussed. Possible methods of avoiding the vanadium corrosion
include injection into the combustion chamber of substances which
react with vanadium pentoxide and the more convenient use of fuel
additives. The object of the present work was to check, on
typical materials used in gas turbines, the corrosivity of
corrosion products of high-sulphur marine heavy-fuel grade Fc -5
(Fs-5) and to study the use of additives to reduce this corrosion.
The tests were made on a model combustion chamber which had
previously been used for testing high sulphur distillate fuels but
for the present work fuel heating equipment was provided. The
test samples were made up as plates of 40 x 25 x 4 mm which were

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The use of residual fuels in gas E194/E135

placed in the path of flow of the combustion products. Corrosion was assessed by change in weight after the specimen had been exposed in the chamber and cleaned by electrolytic treatment in a solution of sodium carbonate and sodium hydroxide. It was found that corrosion is most intense in the first 2 - 3 hours and that it has reached a practically constant value at the end of 5 hours so that there was no need to continue the tests longer than this. The reference fuel was grade P-12 (F-12) containing 130 parts per million sodium and no vanadium. The vanadium content of the other fuels ranged from 16 to 35 parts per million vanadium. The first tests were made with nickel base alloys M-435 (EI-435) and M-602 (EI-602) which show little vanadium corrosion at temperatures below 650-700 °C; however, at higher temperatures the rate of corrosion rises rapidly. Alloys based on iron such as grade M-481 (EI-481) are much more affected by vanadium than are the nickel alloys, particularly at the higher temperatures. The higher the vanadium content of the fuel, the lower the temperature at which the rising inflection of the corrosion curve occurs. At a gas temperature of 800-850 °C appreciable corrosion is observed with 10 ppm vanadium in the fuel, whereas at 630-680 °C corrosion

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26522

S/065/61/000/008/007/009
E194/E135

The use of residual fuels in gas

increases appreciably only with fuel of 30 ppm vanadium or more. In general, at temperatures of 650-850 °C the combustion products of fuels containing 14 - 35 parts per million vanadium increased the rate of corrosion by a factor of 4 to 15, depending on the alloy used. The effect of additives was checked on fuel grade F-12 (no vanadium) and Fn-5 containing 27 parts per million vanadium and 9 parts per million sodium using alloys EI-602, EI-481 and EI-417. The additives used were organic compounds of magnesium that are readily soluble in heavy fuels but differing in the structure of the organic radical. The use of additive to the extent of 0.2% weight of fuel greatly reduced vanadium corrosion. It was shown that some organic magnesium compounds are much more effective than others. It is concluded that with 30 parts per million vanadium in the fuel the use of 0.016% magnesium in the form of soluble organic compounds practically completely prevents vanadium corrosion. Tests were also made with injection into the combustion chamber of ammonia to the extent of 0.5% by weight of the fuel. This also practically prevents vanadium corrosion of the nickel and iron alloys within the temperature range tested.

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The use of residual fuels in gas ...

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E194/E135

Use of ammonia at the rate of 0.2% weight is less effective. The best results were obtained when the ammonia was injected before the combustion zone. A further advantage of using soluble compounds as against the suspensions sometimes used is that erosive wear of the turbine blades is reduced. A mechanism of action of the additives is suggested.

There are 6 figures, 1 table and 14 references; 5 English and 11 Soviet (including 3 translations from Proceedings of World Petroleum Congress VII). The four most recent English language references read as follows:

- Ref.1: A. Garner, P. Green, R. Harper, F. Pegg. J. Inst. of Petrol., Vol.39, 278, 1953.
Ref.2: Proc. Inst. Mech. Eng., Vol.168, No.3, 1954.
Ref.4: P. Lloyd, R. Probert. Proc. Inst. Mech. Eng., Vol.163, 206, 1950.
Ref.9: H. King, H. Nutt. Trans. ASME, Vol.78, No.1, 185-196, 1956.

Card 4/4

ACCESSION NR: AP4017575

S/0065/64/000/003/0058/0062

AUTHOR: Losikov, B. V.; Fat'yanov, A. D.; Aleksandrova, L. A.;
Golovistikov, I. V.; Berezina, R. M.

TITLE: Oils for gas turbine installations

SOURCE: Khimiya i tekhnol. topliv i masel, no. 3, 1964, 58-62

TOPIC TAGS: oil, oil antioxidant, antifriction additive, gas turbine
oil, ionol, butyl phenol, pentachloro diphenyl, sovol

ABSTRACT: The purpose of the work was to find an all-purpose oil for
the lubrication of both bearings and the reducer of a gas turbine.
It should have low viscosity and good antioxidant and antifriction
properties (no sediments formed). The choice was a transformer oil
which was tested with a number of additives to provide the above
properties. After extensive experiments, the authors found that the
addition of ionol (4-methyl-2,6-di-tert-butylphenol) in a proportion
of 0.2-0.7% increases oil stability at 170-200C and gives incompara-
bly better results as an antioxidant than tributyl-, triphenyl- and

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ACCESSION NR: AP4017575

tricresyl phosphates (sediment reduced from 0.9 to 0.1%). It was further found that the addition of 1% sovol (pentachlorodiphenyl), a chemically stable and fully inert compound, raises the anti-wear (antifriction) properties of the oil to the level of the MK-22 oil (critical load 45 and 50 kg, respectively). The addition of more than 2% sovol does not improve the anti-wear property. Both additives are compatible. Laboratory tests were verified by an actual turbine run. Oil for gas turbines with ionol and sovol additives is at present manufactured according to the GOST 10289-62 standard. Orig. art. has: 4 figures and 4 tables.

ASSOCIATION: none

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DATE ACQ: 23Mar64

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NO REF SOV: 000

OTHER: 000

Card 2/2

LOSIKOV, B.V.; FAT'YANOV, A.D.; ALEKSANDROVA, L.A.; HEREZINA, R.M.

Separate quantitative determination of SO₂ and SO₃ in the
exhaust gases of engines. Khim. i tekhn. topl. i masei 9 no.6:
44-47 Je⁶⁴ (MIRA 1937)

LOSIKOV, B.V.; FAT'YANOV, A.D.; ALEKSANDROVA, L.A.; GOLOVISTIKOV, I.V.;
BEREZINA, R.M.

Lubricants for gas-turbine systems. Khim. i tekhn. topl. i
masel 9 no.3:58-62 Mr'64
(MIRA 17:7)